PACIFIC SALMON COMMISSION JOINT CHINOOK TECHNICAL COMMITTEE REPORT

STANDARDIZED FISHING REGIME FOR NORTHERN BRITISH COLUMBIA TROLL AND QUEEN CHARLOTTE ISLANDS SPORT FISHERIES

REPORT TCCHINOOK (05)-1

June 17, 2005

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LIST OF ACRONYMS WITH DEFINITIONS

AABM	Aggregate Abundance Based Management
AI	Abundance Index
ADF&G	Alaska Department of Fish & Game
BCAFC	British Columbia Aboriginal Fisheries Commission
CDFO	Canadian Department of Fisheries & Oceans
CNR	Chinook Nonretention
CRITFC	Columbia River Intertribal Fish Commission
CTC	Chinook Technical Committee
DNA	Microsatellite Deoxyribonucleic Acid
IDFG	Idaho Department of Fish & Game
NBC	Northern British Columbia
NMFS	National Marine Fisheries Service
NWIFC	Northwest Indian Fisheries Commission
ODFW	Oregon Department of Fish & Wildlife
PFMA	Pacific Fisheries Management Areas
PST	Pacific Salmon Treaty
QIN	Quinault Nation
QCI	Queen Charlotte Islands
SSRAA	Southern Southeast Regional Aquaculture Association
USFWS	U.S. Fish & Wildlife Service
WCVI	West Coast of Vancouver Island
WDFW	Washington Department of Fisheries and Wildlife

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1. INTRODUCTION

The Governments of Canada and the United States of America agreed as part of the Pacific Salmon Treaty 1999 Revised Annexes (the Agreement) to *"adopt a management framework for Chinook salmon based on total fishing mortality."* The parties identified the uncertainty in estimates of incidental mortality and agreed that until improvements based on direct fishery observations could be implemented that *" total adult equivalent fishing mortality in each Aggregate Abundance Based Management (AABM) fishery shall be constrained by expressing the fishery management objective as a target catch index and a standardized management regime (e.g., minimum size limit of x, ratio of encounters in Chinook retention to Chinook non-retention periods not to exceed y)."* This provision ensures that until such time as a total fishing mortality regime is implemented, AABM fisheries would continue to be managed in a manner consistent with how these fisheries were conducted at the time of the signing of the 1999 Agreement. The AABM fishery considered here is described in the Agreement as *"Northern British Columbia (NBC) troll (statistical areas 1-5) and Queen Charlotte Islands (QCI) sport (statistical areas 1 and 2)".*

Standardized regime descriptions were meant to detail how AABM fisheries would be conducted under the 1999 Agreement. Such "benchmarks" would facilitate an assessment of whether the implementation of AABM regimes is having the expected effects on the relationship between catch and incidental mortality. This description will attempt to provide a baseline to compare future changes in incidental mortalities of Chinook salmon for the AABM regime. This description describes how the fishery would have been conducted in the absence of domestic constraints and attempts to provide realistic scenarios regarding sector allocation of catch and Chinook non-retention (CNR) at low, medium and high abundance indices. Details of Canada's actual domestic management and conduct of the 1999 fishery appear in Appendix 1, with a history of NBC Troll and QCI sport fisheries provided in Appendix 2.

2. ALLOCATION

Canada's allocation policy is described in the document "An Allocation Policy for Pacific Salmon" (Anon. 1999). Allocations to the AABM fisheries of NBC troll and QCI sport are afforded within the following context: *"After conservation needs are met, and priority access for First Nations . . . is addressed, recreational anglers will be provided ... priority to directed fisheries on Chinook ..."* Thus Chinook allocations to the QCI sport fishery take precedence over allocations to the NBC troll fishery. The QCI sport fishery has continued to grow since the signing of the initial Agreement in 1985. There have been no explicit numerical constraints to the QCI sport catch. Consequently, as the sport fishery grows, more of the AABM allocation will be harvested by this sector. Implementation of the current allocation policy is consistent with the needs of the recreational fishery where fishing time and the opportunity to fish are more important than an explicit amount of fish.

Troll allocations represent the difference between the allowable catch under the AABM regime minus preseason forecasts of sport fishery catches based on catch trends from previous years. This informal procedure is verified in-season through monthly catch reports. The sport fishery has undergone sustained growth in recent years so preseason forecasts for the past few years have simply been the previous year's catch plus 10 percent. Formal derivation of QCI

sport fish catch forecasts have not been undertaken, as Canada has not reached the Pacific Salmon Treaty (PST) ceiling for Chinook since 1992 (Table 1).

3. NBC TROLL MANAGEMENT

3.1 Size Limit

Under the Pacific Fishery Regulations, Chinook salmon retained in NBC troll fisheries must be a minimum of 67 cm in length, measured from the tip of the nose to the fork of the tail (fork length). An equivalent measurement of 56 cm along the shortest length of the body to the fork of the tail is used for troll caught Chinook salmon where the head is removed.

3.2 Troll Licensing

The North Coast troll fishery is defined as Area F, and consists of Pacific Fishery Management Areas 1 to 10, 101 to 110, and 130 and 142. The AABM component fishery of NBC troll consists of Areas 1 to 5, 101 to 105, 130 and 142 within Area F (Figure 1). Complete area descriptions are available in the Pacific Fishery Management Area Regulations (http://www.ncr.dfo.ca/communic/policy/dnload_e.htm.).

Licences were limited in the British Columbia Troll fishery in 1999. The number of licences in the BC troll fishery was in the process of being reduced from ~ 1000 in 1998 to ~ 540 by year 2000. A total of 751 troll licences were issued in 1999 with 235 issued in Area F. In comparison, the Area F fleet consisted of only 145 licensed vessels in 2003. Although the number of licences was reduced, significant capacity for Chinook harvest remains because the process of fleet reduction removed less viable operations (much of fleet now consists of the "high-liners").

3.3 Troll Gear

The following gear restrictions apply. Troll vessels licensed for Area F cannot have more than six gurdies installed or use more than six lines in aggregate. The number of hooks fished off of each line is not limited.

Barbless hooks and revival tanks are mandatory in the troll fishery. Licence conditions require that troll vessels be equipped with revival tanks, though their use is not mandatory. Revival tanks contain a minimum volume of 144 litres of openly circulated seawater and are designed to temporarily hold and revive injured or stressed fish prior to release. The tanks are rarely used.

3.4 Troll Openings

In the absence of Canada's domestic concerns, troll openings are structured to harvest any remaining AABM allocation once sport catch is taken into account. Time and area restrictions would be imposed to optimise Chinook harvest and minimise the interception of non-target species. Catch allocations, fishery location, timing and duration are described below for low, medium and high abundance indices (AI).

At low abundance levels (e.g. AI = 0.4, AABM allocation = 52K, troll portion ≈ 26K) the troll fishery in Area F would be closed during times and/or in areas that typically produced the most Chinook salmon (e.g. summer in Areas 1 & 2W). If opportunities for other species are limited then directed fisheries for Chinook would be very short (less than 1 week), or would occur late in the season. If troll-fishing opportunities for other species are available then much

of the Chinook allocation would be taken as incidental Chinook catches during fisheries directed at other salmon species. Areas of known Chinook abundance could be closed to reduce CNR periods. However, the CNR fishery could exceed 60 d in duration.

At moderate levels of abundance (e.g. 1999 AI = 1.12, AABM allocation = 146k, troll portion ≈ 90k) the troll fishery would open around July 1 and would remain open until the Chinook allocation was reached (estimated duration ~30 d). High levels of fleet participation would be expected, with 70 to 90 percent of licensed vessels fishing. In the event that other species were available, it's probable that directed troll fisheries in areas of Chinook abundance (like the west coast of the QCI) would close as the Chinook allocation was approached. This would slow the Chinook catch rate to allow continued Chinook retention in fisheries directed at other species. Once the Chinook allocation was met, fisheries for sockeye, pink and coho salmon would continue with non-retention of Chinook. It's probable that areas of high Chinook abundance would remain closed to trolling to avoid Chinook encounters after the Chinook allocation is met.

At high abundance levels (e.g. AI = 1.75, AABM allocation = 255K, troll portion >200K) the troll fishery would open in May or June and the fishery could continue for over 90 d. The availability of other species would influence the opening date. If troll fisheries for other species were limited, the Chinook troll fishery could open earlier to catch much of the Chinook allocation before encounters of other species became significant. If troll fisheries were planned for other species, Chinook retention would be allowed to some degree in those fisheries. It's probable that the troll fishery would begin later, in June or July to take advantage of opportunities on mixed species. In other respects the fishery would be managed in a manner similar to those described for moderate levels of abundance. Significant area closures or CNR fisheries would be unlikely under most high abundance scenarios (CNR < 20 d).

3.5 Troll Monitoring

The troll fishery is monitored through a system of over-flights, landing slips, logbooks and phone-in hails. Fishers must report catch and incidental species encountered during the fishery to the phone-in logbook system upon landing their catch

4. QCI SPORT MANAGEMENT

4.1 Size Limit

The size limit for Chinook salmon caught in the QCI sport fishery is 45 cm fork length.

4.2 Sport Licensing

A tidal water sport fishing licence is required to harvest Chinook salmon in the sport fishery, allowing anglers to fish any areas open to fishing on the coast of British Columbia. The number of licences issued in the sport fishery is not limited. Licenses are not area specific so the number of licensed anglers authorised to fish the Queen Charlotte Islands would remain unknown. The licence year begins April 1, with "annual" licences expiring the March 31 following the date of issue. Licences for 1 d, 3 d and 5 d are also available. Anglers are required to purchase a "Salmon conservation stamp" in order to harvest any species of salmon.

The cost of an annual licence and stamp is $30 for residents of Canada and $115 for non-residents. Additional information on sport licences is available on the Fisheries & Oceans,

Pacific Region, Sport Fishing Homepage (http://www.pac.dfo-mpo.gc.ca/recfish/Licences/sportLic_e.htm).

4.3 Sport Restrictions

Bag limit: 2 Chinook per day, 4 Chinook in possession, with an annual limit of 30 Chinook. Barbless hooks are mandatory. Anglers are permitted to fish any number of rods. The number of Chinook that anglers may release is unlimited.

4.4 Sport Openings

The major sport fishing locations are indicated in Figure 2. These areas have expanded since 1999 to include more of the near shore waters on the west coast of QCI.

Under most abundance indices (medium AI = 1.12 or high AI = 1.75) the sport fishery would be offered full access to Chinook salmon as defined within the current allocation policy (maximum retention of 2 Chinook per day, 4 in possession, 30 annually). In the event that catches by the sport fishery were projected to exceed the AABM allocation, either through growth of the fishery and/or reduced abundance, the first management action to constrain the catch to the AABM limit would be to reduce the bag limit (i.e. to 1 Chinook per day with a possession limit of 2). The reaction of the sport fleet to low (AI<0.4) levels of abundance is unknown. It's possible that no changes would be required under low abundance scenarios since they simply might not be able to catch the allocation due to abundance related effects (e.g. fewer fish could reduce success and/or lead to less effort). QCI sport catch has been highly correlated with the abundance index since 1999 (Table 1.). In the event that in-season assessments indicated that bag limits did not sufficiently reduce sport catch to the AABM ceiling, further catch reductions could be implemented through time and area closures.

4.5 Sport Monitoring

The sport fishery is monitored though a creel survey combined with a logbook system incorporated by the fishing lodges. In-season estimates are derived from the creel survey. Post season estimates are a combination of creel survey and logbook data.

5. ESTIMATES OF INCIDENTAL MORTALITY

Incidental mortalities are estimated in the NBC Troll and QCI sport fisheries using Chinook Technical Committee (CTC, 1997) recommended rates. Troll hook and release mortality: 18.5% for legal sized fish and 22.0% for sublegal sized fish captured on barbless hooks. Recreational hook and release mortality: 12.3% for Chinook ≥33 cm and 32.2% for fish <33cm captured on barbless hooks. Further details on incidental mortalities have been described by the CTC (2004).

QCI sport encounters of Chinook salmon are estimated from creel surveys and voluntary logbooks offered to lodges and charter operators. Creel surveys are conducted from late May to mid September covering most of the recreational Chinook catch. Most release data are not size specific. However, data available from logbooks indicate that most Chinook released in the QCI sport fishery are legal sized.

Troll catch data are derived from fish slips, hail data, and test fishery reports. Chinook encounters are assessed primarily from hail data verified with observer and test fishery data.

6. SUMMARY

6.1 Troll Summary:

All abundance scenarios:

Allocation = AABM ceiling less sport catch.
67cm size limit and head-off equivalent of 56 cm.
Barbless hooks, maximum 6 gurdies, unlimited hooks per gurdy, revival tanks.
1999 Maximum 235 vessels (now reduced to 145).

High abundance (AI = 1.75):

Other species available: ~ 90 d directed fishery followed by incidental retention in non-directed troll fisheries, with possible area closures; minimal CNR (0 to 20 d).
Other species not available: ~ 90 d directed fishery beginning earlier in the season; no CNR.

Moderate abundance (AI = 1.12):

Other species available: ~30 d directed fishery followed by incidental retention in non-directed troll fisheries, with possible area closures; CNR up to 30 d (0 to 30 d).
Other species not available: ~30 d directed fishery; no CNR.

Low abundance (AI = 0.4):

Other species available: Incidental retention in non-directed troll fisheries, area closures in effect; CNR up to 60 d (0 to 60 days).
Other species not available: Short directed fishery; no CNR.

Very Low abundance (sport catch can meet or exceed AABM):

Closure of directed troll fisheries; limited CNR in non-directed troll fisheries (0 to 30 d).

6.2 Sport Summary:

All abundance scenarios:

Allocation = precedence over troll up to the AABM ceiling.
45 cm size limit.
Barbless hooks.
Unlimited rods per angler.
No limit on the number of anglers that may be licensed.
No limit on the number of Chinook that may be released.

Low to High abundance (AABM allocation > projected QCI sport catch):

No regulatory changes required.
Bag limit 2 per day, 4 possession, maximum 30 per year.
Open all year.

Low abundance (projected QCI sport catch > AABM allocation):

Regulatory changes imposed to constrain catch to the AABM allocation.
Bag limit 1 per day, 2 possession, maximum 30 per year.
Open all year.

Extreme low abundance (projected QCI sport catch >> AABM allocation):

Additional regulatory changes imposed to constrain catch to the AABM allocation.
Bag limit 1 per day, 2 possession, maximum 30 per year.
Time and area closures.

ACKNOWLEDGEMENTS

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Milne, D.J. 1964. The Chinook and Coho salmon fisheries of British Columbia. Fisheries Research Board of Canada. Bulletin No. 142. 47 p.

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Table 1. Landed catch of Chinook salmon by the NBC Troll and QCI sport fisheries relative to domestic and PST allocations, 1985 to 2004.

Year	PST[1] Preseason Ceiling (1000's)	Total[2] PST Catch (1000's)	Domestic Troll Ceiling	Potential Troll allocation within the PST ceiling (1000's)	Actual NBC Troll Catch (Areas 1 to 5)[4] (1000's)	QCI Sport Catch
1985	263	274	= portion of PST ceiling	180	187	1
1986	263	261	= portion of PST ceiling	164	153	1
1987	263	283	= portion of PST ceiling	167	177	3
1988	263	247	= portion of PST ceiling	174	152	7
1989	263	301	= portion of PST ceiling	173	208	21
1990	302	253	= portion of PST ceiling	208	154	17
1991	273	304	= portion of PST ceiling	169	194	15
1992	263	268	= portion of PST ceiling	148	142	21
1993	*	257	portion of 263,000	172	162	25
1994	*	251	portion of 263,000	179	164	29
1995	*	119	60,000	202	57	23
1996	*	27	0	236	<1	1
1997	*	167	85,000 before Sep.	188	87	28
1998	*	180	110,000 before Sep.	201	116	34
1999	146	75	50,000 before Sep.	120	45	30
2000	130	32	0 before Sep.	108	10	22
2001	133	43	0 before Sep.	102	13	30
2002	193	151	3,052 WCVI Chinook[3]	146	104	47
2003	197	192	6,718 WCVI Chinook[3]	142	137	54
2004	244	231	7,800 WCVI Chinook[3]	170	157	74

[1] From 1985-1992, the PST agreed catch ceiling for all north and central coast fisheries combined was 263,000. Increments were added in 1990 and 1991. From 1993-1998, no formal agreement on catch limits was in place. In 1993 and 1994, Canada chose to fish to the pre-1993 ceiling; conservation concerns from 1995-1998 kept Canada's harvest well below this ceiling. Since 1999, catch allowance were developed annually through an abundance based management approach. See Appendix 2 for more details.

[2] Up until 1998, catch included all north and central coast landings. Since 1999, catch reported includes only NBC troll and QCI sport landings.

[3] Assessed via DNA analyses, monitored in-season in 2002-2004.

[4] Area 1 to 5 troll data from fish slips up to 2000 then from combined hails & slips.

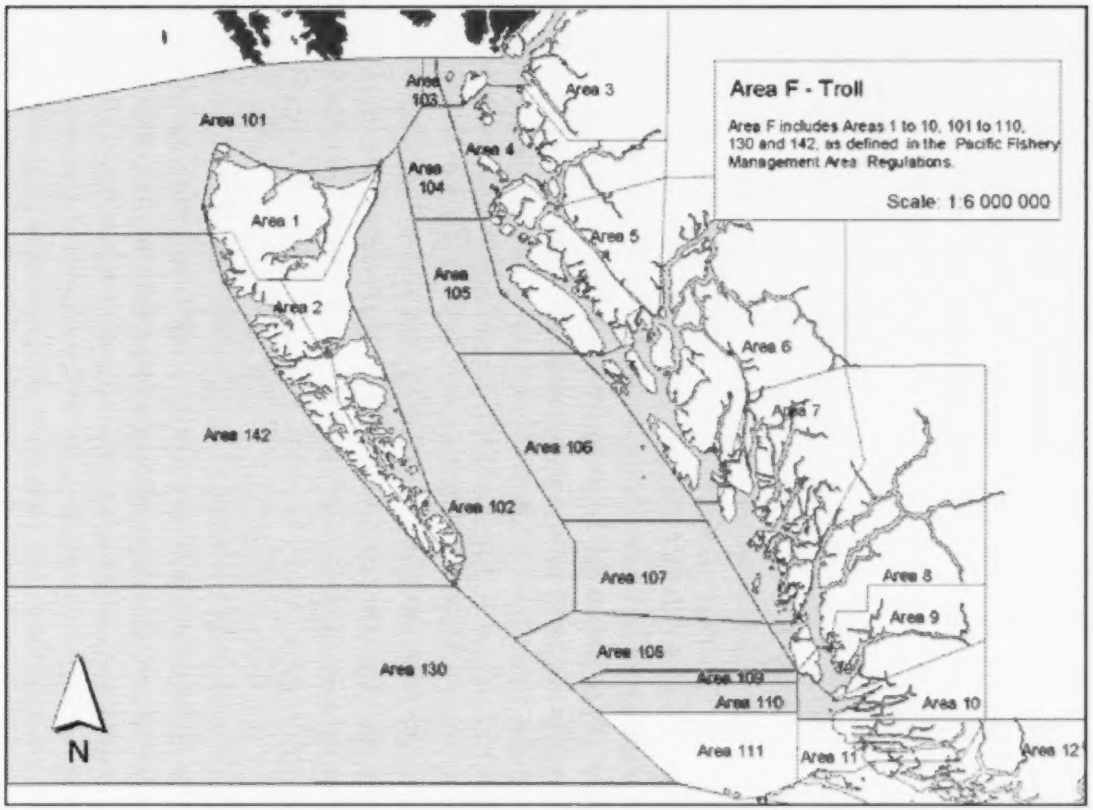

Figure 1. Map of North Coast Troll fishing Area, Area F.
Note that each statistical area is composed of a near shore area bearing the same number and an off-shore area with a number greater than 100 (usually equalling the near shore area number plus 100 except for area 2 which includes off-shore areas 130 and 142).

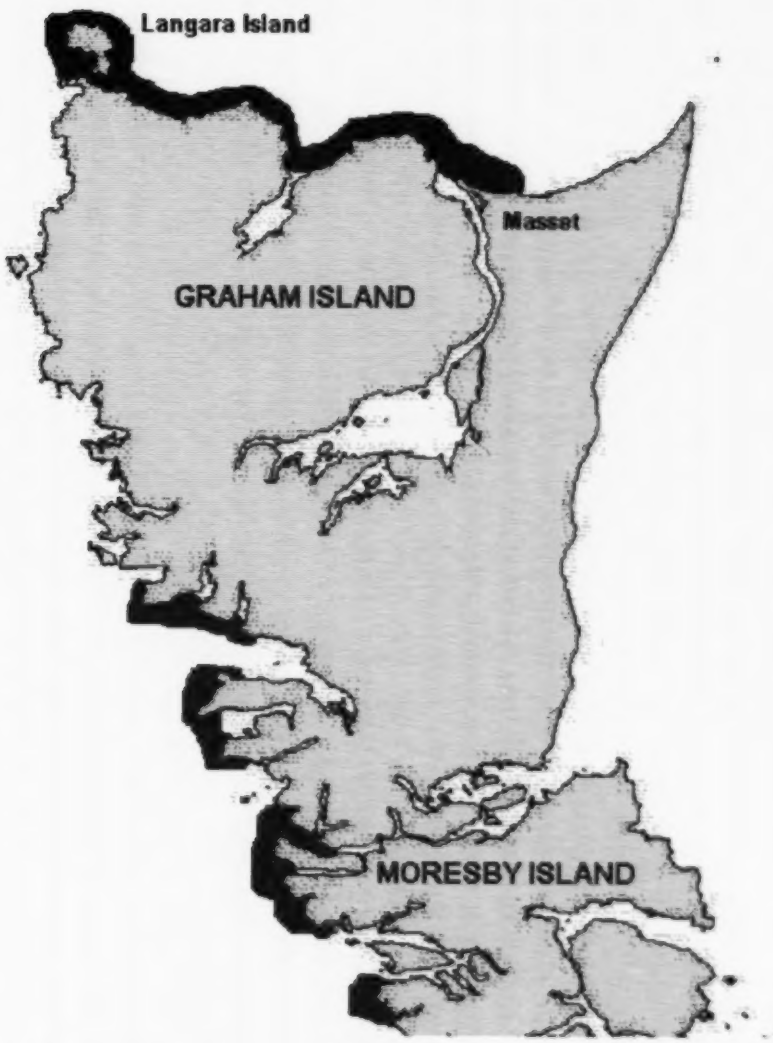

Figure 2. Map of the Queen Charlotte Islands showing the primary sport fishing areas (indicated by red or dark shading) in 1999.

APPENDICES

Appendix 1: Details on Canada's domestic management of Chinook in 1999.

Introduction:

Canada's conservation concerns for West Coast of Vancouver Island (WCVI) Chinook stocks resulted in domestic Chinook allocations that were much lower than the ceilings provided in the Agreement. Further, Canada's conservation concerns for coho in the upper Skeena River and Thompson River eliminated troll fisheries for other species and any potential for Chinook nonretention (CNR) fisheries. As the 1999 NBC Troll and QCI Sport fisheries were not representative of how these fisheries normally occur, it was agreed within the Chinook Technical Committee (CTC) that the standardized regime description would reflect how these fisheries would have been conducted had there been no domestic conservation concerns. The standardized fishing regime presented above describes fishery allocation, regulations and conduct of the Northern British Columbia (NBC) Troll and Queen Charlotte Islands (QCI) sport fisheries as they would have been fished under the terms of the Pacific Salmon Treaty 1999 Revised Annexes in the absence of such conservation concern.

NBC troll fisheries have been restricted due to concerns for WCVI Chinook. WCVI Chinook are primarily ocean type and far north migrating. They return as adults at ages 3, 4 and 5. Most of the age 3 Chinook are male so returns of age 3's alone do little to contribute to the reproductive success of the stock. Successive broods of WCVI Chinook were subject to very poor marine conditions in the 1990's due to warm water events (El Nino, La Nina, etc.). The progeny of the 1991, 1992, 1995, 1996 and 1997 broods experienced very poor marine survivals. Domestic ceilings have limited the NBC troll fishery since 1995 in attempts to rebuild WCVI Chinook stocks. For the most part, management actions have resulted in catch foregone from the NBC troll fishery and in one year (1996) reductions to catches in the QCI sport fishery as well.

Canada also limited troll fisheries in 1999 due to conservation concerns for coho in the upper Skeena River and Thompson River. There were no directed troll fisheries on coho and the normal A-B line pink fishery did not occur in 1999 due to collateral impacts that would have occurred on coho. These actions eliminated non-retention fisheries and incidental catches of Chinook.

All Canadian troll fisheries that would have been allowed to harvest a portion of the 1999 AABM Chinook allocation were under severe constraints. The overall effect of domestic constraints on the troll fishery were huge, with effort dropping from an average of 25,000 vessel days between 1985 and 1995 to approximately 2200 vessel days in 1999.

Allocation:

Current policy affords Chinook salmon allocations to the AABM fisheries of NBC troll and QCI sport within the following context: *"After conservation needs are met, and priority access for First Nations . . . is addressed, recreational anglers will be provided ... priority to directed fisheries on Chinook ..."* (Anon, 1999). Thus sport catch takes precedence over directed troll fisheries for Chinook. This precedence is limited to a maximum daily bag limit of 2

Chinook per day with a possession limit of 4 Chinook and an annual bag limit of 30 Chinook per angler even under high abundance scenarios.

The 1999 preseason abundance index for NBC troll and QCI sport was 1.12 with an associated allowable catch of 145,600 Chinook. The post season index was 0.94 with an associated catch of 122,200 Chinook. Under these levels of abundance the sport fishery received full access as described above with the troll fishery harvesting the difference. The 1999 sport catch of Chinook salmon in QCI was 30,200 Chinook; the preseason ceiling for the NBC troll fishery would therefore have been 115,400 Chinook. Table 1 indicates landed catches in the NBC troll and QCI sport fisheries from 1985 to 2004.

Troll Openings:

Troll openings were severely constrained in 1999 due to domestic concerns for Chinook stocks on the west coast of Vancouver Island and coho stocks in the upper watersheds of the Fraser and Skeena Rivers. As a result Canada did not reach its' AABM allocation. A troll fishery for Chinook occurred from August 1 to 15, 1999. Only 44,900 Chinook were caught out of the 115,400 Chinook available to the troll fishery within the AABM allocation. It's possible that a larger fishery would have attracted more vessels than the 150 active vessels observed in 1999. However, directed Chinook troll fisheries typically show some saturation effect so it's likely that even if all of the 235 Area F licensed vessels fished, there would be only a minimal reduction in the duration of the fishery. No CNR fisheries occurred in 1999, as there were no other troll opportunities due to coho conservation concerns.

Sport licensing:

A total of 233,408 licences were issued to resident anglers and 86,605 licences were issued to non-residents in B.C. in 1999. Anglers were required to purchase a "Salmon conservation stamp" in order to harvest any species of salmon. A total of 223,494 stamps were issued in 1999.

Sport Restrictions:

The QCI sport fishery was offered full access to Chinook salmon in 1999 as defined within the current allocation policy. Sport anglers could retain 2 Chinook per day, have 4 Chinook in possession, and were restricted to an annual limit of 30 Chinook. There were no fishery closures. Barbless hooks were mandatory. Anglers were permitted to fish any number of rods. The number of Chinook that anglers could release was unlimited.

Sport Openings:

The QCI sport fishery was open to retention of Chinook salmon through all of 1999. The major sport fishing locations are indicated in Figure 2.

Appendix 2: History of the NBC Troll and QCI sport fisheries.

NBC Troll Management

Troll Size Limits

Size limits for the retention of Chinook salmon have not changed in the NBC troll fishery since 1987. The current (2003) Pacific Fishery Regulations restrict the retention of Chinook salmon caught in troll fisheries to a minimum size of 67 cm in length, measured from the tip of the nose to the fork of the tail (fork length). This size limit applies to the entire NBC troll fishing area. An equivalent measurement of 56 cm along the shortest length of the body to the fork of the tail is used for troll caught Chinook salmon where the head has been removed. Historically, the first size limit for Chinook salmon caught in the troll fishery was set at 26 inches total length by the International Conference on the Co-ordination of Fishery Regulations between the United States and Canada in 1957 (Milne, 1964). Size limits were converted to metric in 1980. In 1982 the Chinook size limit was reduced to 62 cm fork length in Canada (Wendy Grider, Pacific Commercial Salmon Fishery Regulations, pers. comm.). In 1987 the size limit was increased to the current 67 cm fork length for outside troll fisheries.

Troll Licensing

Several licence-restructuring regimes have been undertaken to reduce and control salmon fishing fleets. Prior to 1966, commercial salmon licences were not limited. Commercial licence limitation began in 1966 with the implementation of three initial salmon licence categories, A, B and N. All of these categories were permitted to fish for Chinook salmon via trolling. The Strait of Georgia and adjacent waters [Pacific Fishery Management Areas (PFMA's) 13 to 18, 28 and 29] were licensed as a separate "Inside" troll area in 1984. The remainder of the B.C. coast from the border with Washington to the border with Alaska was licensed under an "Outside" troll licence from 1984 to 1996. Combination vessels that could fish both troll and gillnet gear were permitted and these vessels made up a significant portion of the fleet.
New licence areas were defined in 1996 for management of the troll fishery. Licences were restricted to a single gear type (troll, gillnet or seine) and a single licence area. The North Coast troll fishery was defined as Area F licence category consisting of PFMA's 1 to 10, 101 to 110, and 130 and 142. The fleet currently consists of ~150 vessels licensed in Area F. Two other troll areas were identified: Area H consists of PFMA's 12 to 19, 28 and 29 and Area G consists of PFMA's 11, 20 to 27 111, 121, 123 to 127 and a portion of Area 12 (subareas 12-5 to 12-16). Full descriptions are available in the Pacific Fishery Management Area Regulations available at http://www.ncr.dfo.ca/communic/policy/dnload_e.htm.

The following tables show the distribution of troll licences issued annually by area. In 1996 area data were not retained for some of the troll licences issued. These vessels may have been designated to any of the three areas F, G or H.

Year	# Inside licences issued	# Outside licences issued
1984	140	768
1985	195	1071
1986	186	1002
1987	172	841
1988	154	685
1989	147	550
1990	162	507
1991	161	591
1992	149	631
1993	136	564
1994	171	534
1995	161	470

Year	# Area F licences issued	# Area G licences issued	# Area H licences issued	# Licences issued but area data not retained
1996	340	592	176	193
1997	314	468	220	
1998	312	467	221	
1999	235	336	180	
2000	146	238	153	
2001	140	234	156	
2002	145	238	156	
2003	154	231	149	
2004*	157	233	148	

*preliminary

Troll Gear

Troll vessels licensed for Area F may not have more than six gurdies installed or more than six lines in aggregate that are used or installed on the vessel. The number of hooks fished off of each line is not limited. The limit of 6 lines per vessel has been in place for the NBC troll fishery since 1979. Prior to 1979 the number of lines permitted to be fished from a troll vessel was unlimited.

Barbless hooks and revival tanks have been required in the troll fishery since 1996. Revival tanks contain of a minimum volume of 144 litres of openly circulated seawater and are designed to temporarily hold and revive injured or stressed fish prior to release. Licence conditions require that troll vessels be equipped with the tanks but actually placing fish in the tank has remained up to the discretion of the fisherman. Most fish are released overboard without touching the fish by grasping the leader and rotating the hook over the bend of a gaff.

This method isn't always practised for large fish as the weight on the leader doesn't allow for rotation of the hook over the gaff. Large fish are often lifted aboard prior to release.

Troll Openings

No closed periods were applied to the troll fishery prior to 1957. A closed season of November 1 to April 14 was adopted in 1957 (Milne, 1964). Prior to the Pacific Salmon Treaty in 1985 commercial troll fishery opening times varied but typically began April 15th and ended September 30.

The NBC troll fishery was part of the North and Central British Columbia (NCBC) complex that included all tidal fisheries on Chinook. From 1985 to 1989 the annual all gear NCBC catch ceiling was 263,000 Chinook salmon. In 1990 an increment of 39,000 Chinook was added to the ceiling. These fish were to be caught in the northern portion of the region. Also in 1990 the 302,000 NCBC ceiling excluded catches in extreme terminal areas (Pacific Salmon Treaty, Annex IV amended May, 1990). In 1991 the catch ceiling was 263,000 plus 10,000 excluding catches in extreme terminal areas. The ceiling reverted back to 263,000 in 1992. There were no agreed PSC ceilings in 1993 and 1994 so a harvest target was set of 263,000.

Directed troll fishing times are presented below. Prior to 1998 and in 2001 trollers were also allowed to fish during net fishing open times. Trollers did not participate in most net fishery openings.

YEAR	TROLL SEASON	Chinook season
1982	April 15 to October 31	same
1983	April 15 to June 15 July 1 to September 30	same
1984	May 23 to June 3 July 1 to September 30	same
1985	May 9 to 20 July 1 to September 30	same
1986	June 20 to September 5	same
1987	July 1 to September 8?	same
1988	July 1 to August 4?	same
1989	July 1 to September 5	same
1990	June 28 to September 30	June 28 to August 18
1991	July 1 to September 30	July 1 to September 3
1992	July 1 to September 15	July 1 to August 15
1993	July 1 to September 12	
1994	July 1 to September 14	
1995	July 1 to September 10	
1996	July 8 to September 23	closed
1997	July 1 to October 15	area closures
1998	July 8 to October 6	area closures
1999	August 1 to August 15	August 1 to 15
2000	August 8 to 22 September 2 to 24	September 2 to 24
2001	June 4 to 15 July 2 to 18 August 26 to September 30	June 4 to 15 July 6 to 18 September 8 to 30
2002	October 4, 2001 to June 8, 2002 August 1 to September 30	October 4, 2001 to June 8, 2002 September 8 to 30
2003	October 1, 2002 to May 12, 2003 June 19 to July 5 July 25 to August 31 September 4 to 9	October 1, 2002 to May 12, 2003 June 19 to July 5 September 4 to 9
2004	October 1, 2003 to April 15, 2004 June 15 to July 1 July 15 to September 30	October 1, 2003 to April 15, 2004 June 15 to July 1 July 18 to July 22

QCI Sport Management

Sport Size Limits

The size limit for Chinook salmon caught in the QCI sport fishery is 45 cm fork length. This size limit has been in place since 1981 (Wendy Grider, Tidal Waters Sport Fishing Guide, pers. comm.). Initially the sport size limit was set at 12 inches fork length in August 1960 (Milne, 1964). The metric equivalent, 30 cm, remained in place until 1981.

In 2001 a slot size was imposed on part of the daily sport limit in QCI to reduce the potential impacts on WCVI Chinook salmon. The size limit for Chinook salmon was varied to allow retention of only one Chinook over 77cm fork length per day from June 4 to August 31, 2001. An angler's daily bag could consist of one Chinook in the 45-77cm slot size and one Chinook over 77cm or 2 Chinook in the 45-77cm slot size. The possession limit remained twice the daily limit and the minimum size limit of 45 cm was in effect all year.

Sport Licensing

A tidal water sport fishing licence is required to harvest Chinook salmon in the sport fishery which allows anglers to fish any areas open to fishing on the coast of British Columbia. Licences are not area specific so the number of licences issued for use in the QCI sport fishery is uncertain. The number of licences issued in the sport fishery is not limited. The licence year begins April 1, with "annual" licences expiring March 31 following the date of issue. Licences for 1, 3 and 5 d are also available. The number of licences issued to residents of Canada increased to a maximum of 299,876 in 1993/4 then declined to 208,995 in 2001/2. Licences issued to non-resident anglers showed a similar trend, increasing to 93,394 in 1994/5 then declining to 73,055 in 2001/2.

In recent years anglers have been required to purchase a "Salmon conservation stamp" in order to harvest any species of salmon. The cost of an annual licence and stamp is approximately $30 for residents of Canada and $115 for non-residents. Additional information on sport licences is available on the Fisheries & Oceans, Pacific Region, Sport Fishing Homepage (www.pac.dfo-mpo.gc.ca/ops/fm/Licensing/Sport/sport_lic.htm)

Sport Restrictions

Sport anglers have been restricted to an annual limit of 30 Chinook since 1982. In 1985/86 the regulation was amended to allow only 20 of the 30 Chinook annual limit to come from the Strait of Georgia. Prior to 1992 sport anglers could retain 4 salmon per day of any species, with the possession limit being twice the daily limit, or 8 salmon per day of any species. Since 1992, anglers could retain 2 Chinook per day and have 4 Chinook in possession. The only exceptions to these bag limits were imposed in 1996 when the daily limit was reduced to 1 Chinook per day with a possession limit of 2 Chinook from April 1 to May 30 and no Chinook were allowed to be retained between June 1 and November 30, 1996. The daily limits and possession limits returned to 2 and 4 respectively after December 1, 1996.

Barbless hooks have been required in the B.C. sport fishery since June 1, 1998. Anglers are permitted to fish any number of rods. There have been no restrictions on the number of fish that an angler may release.

Sport Openings

The QCI sport fishery is typically open to retention of Chinook salmon year round. The only exception was in 1996 when no Chinook retention was allowed from June 1 to November 30. Anglers were permitted to fish for other species of salmon during this time. A full closure with no angling has never been implemented in QCI.

In 1998 a closure to sport fishing for salmon was established in Area 101 *'outside of a line 2 nautical miles seaward of the shoreline of Graham Island . . . and . . . Langara Island'* to protect coho stocks. Inside this boundary and other areas around the QCI were deemed special management zones where angling for salmon was permitted. This closure had virtually no effect on the sport fishery for Chinook salmon in 1998.